CLAIMS

What is claimed is:

1. A method of forming a high resolution LED array comprising the steps of:

providing a plurality of LED chips to form the LED array;

inward biasing an electrode of an LED located at each end of each chip by a predetermined amount;

reducing a size of each LED chip by removing, at each end of each chip, an amount of chip material substantially equal to the predetermined amount; and

forming the array by placing each chip end to end with a gap between each chip, wherein the gap is suitably large for placement accuracies and a consistent pitch of approximately 21.2 μm is maintained between each LED on each chip.

2. The method of claim 1 wherein the step of inward biasing the electrode comprises positioning the electrode approximately 2.6 μm from the edge.

3. The method of claim 1 wherein the predetermined amount is approximately 2.6 μm.

4. The method of claim 1 wherein the step of inward biasing includes shifting a centroid of light emitted from the LED to a side of the chip near the end of the chip, wherein an emitted light profile of the LED is varied to allow the gap between adjacent chips to be larger while a consistent distance is maintained between adjacent pixels on each chip.

5. The method of claim 1 wherein the step of inward biasing includes biasing a centroid of each LED at the end of each chip toward the edge.

6. The method of claim 1 wherein the high resolution LED array formed comprises an LED array providing at least 1200 spots per inch ("SPI)".

7. A high resolution LED printbar comprising:

a plurality of LED chips butted together with a gap between adjacent LEDs to form an array, wherein each LED chip comprises:

a plurality of LEDs, each LED adapted to generate an emitted light;

a center electrode extending from each LED that is adapted to electrically connect the LED to a wire bond pad, the center electrode being positioned over an emitting side of the LED, wherein a centroid of emitted light from each LED is centered over the LED;

an LED at each end of the chip and an electrode associated with each end electrode, the electrode being inward biased over each respective end LED, wherein a centroid of emitted light from each end LED is positioned closer to an outer edge of the chip; and

wherein the gap between each LED chip in the array provides a pitch between each adjacent LED in the array of approximately 21.2 µm.

8. The printbar of claim 7 wherein the gap between adjacent LED chips in at least 5µm.

9. The printbar of claim 7 wherein a resolution of the printbar is at least 1200 spots per inch.

10. The printbar of claim 7 wherein a distance of at least 5µm is maintained between a chip edge and an adjacent edge of the end LED and a gap between adjacent LED chips is approximately 6.4µm.

11. The printbar of claim 7 wherein the electrode of the end LED produces a light centroid that is right of center.

12. A high resolution LED array comprising:

a plurality of LED chips placed end to end with a gap between each chip;

a center electrode associated with each LED on each chip adapted to electrically connect each LED to associated circuitry and form a centroid of emitted light from each LED;

a pair of end LEDs on each chip, wherein the center electrode associated with each end LED is inward biased by a predetermined amount in order to maintain a consistent pitch of approximately 21.2 μm between each LED on each chip.

13. The LED array of claim 12 wherein a size of each chip is reduced by the predetermined amount.

14. The LED array of claim 12 wherein the predetermined amount is approximately 2.6 μm.

15. The LED array of claim 12 wherein the gap is approximately 5 μm.

16. The LED array of claim 12 wherein a resolution of the LED array is at least 1200 spots per inch.

Add B'